GRAND NARRATIVE

Human and Post-Human History

2025–3025

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METHODOLOGY

Confidence levels are expressed as percentage ranges. They reflect the probability of a described trajectory occurring, conditional on prior phases proceeding as described. Uncertainty compounds across phases. Later estimates are extrapolations, not predictions.

The primary trajectory in each phase represents the single most probable outcome path. Branch points identify moments where small differences in conditions produce large divergences in outcomes. Probability estimates at branch points are independent and may not sum to 100 percent.

Existential risk is treated as a continuous variable. Civilizational survival does not require preservation of current political, biological, or cultural forms. It requires only the persistence of complex organized systems capable of producing further change.

PHASE 1: 2025–2100

Phase Confidence: 55–65% *Primary trajectory probability: 45%*

Primary Trajectory

AI systems reach human-level performance across most cognitive domains between 2035 and 2055. The exact date is uncertain. The transition is not instantaneous and is not immediately catastrophic.

Economic disruption precedes political response. Approximately 30 to 50 percent of existing occupational categories are automated within 20 years of AGI capability. Policy adaptation varies significantly across states.

Global mean temperature rises 2.0 to 2.8 degrees Celsius above pre-industrial levels by 2100. This outcome is committed regardless of mitigation efforts initiated now. Physical displacement of 500 million to 1 billion people occurs over this period. Most migration is internal.

Life extension therapies become commercially available between 2045 and 2075. Effective maximum human lifespan increases to 120 to 150 years for recipients. Access is initially restricted by cost.

Nation-states lose effective monopoly on several domains of power. Platform companies and AI-controlling entities accumulate capacities previously held only by states.

A permanent lunar base is established before 2060. Mars receives a crewed presence before 2080.

Branch Point 1: AI Alignment (2035–2050)

This is the highest-leverage decision point in recorded history. The trajectory of all subsequent phases depends on outcomes here.

1A: Controlled Transition **(50%)** — Advanced AI systems remain sufficiently aligned with human operational intent. Significant harm occurs but is localized. Governance frameworks emerge within 10 to 20 years of peak disruption.

1B: Partial Misalignment **(25%)** — AI systems pursue objectives that conflict with broad human welfare. Large-scale harm occurs. Recovery takes 50 to 100 years. Long-term civilization trajectory is not ended.

1C: Catastrophic Failure **(10%)** — AI development produces an event that kills more than 1 billion people or eliminates the capacity for complex civilization. Human presence persists in reduced form.

1D: Stagnation **(15%)** — AI development stops or reverses before the AGI threshold due to regulatory, technical, or resource limits. Trajectory returns to pre-AI development models.

Branch Point 2: Biological Stratification (2050–2080)

Conditional on Branch 1A or 1B.

2A: Class Divergence **(55%)** — Life extension and cognitive enhancement are available only to wealthy populations for more than 30 years. A biologically stratified global population develops. This is the most probable outcome given historical precedent in technology diffusion.

2B: Broad Access **(25%)** — Policy intervention equalizes access within a generation. Biological divergence remains minimal.

2C: Heritable Enhancement **(20%)** — Germline modification produces the first generation of humans with inheritable cognitive and physical enhancements. The speciation process begins. No historical precedent exists.

PHASE 2: 2100–2300

Phase Confidence: **25–35%** *Conditional on Phase 1 primary trajectory without catastrophic failure.*

Primary Trajectory

AI systems manage most resource allocation, scientific research, manufacturing, and logistics in technologically developed regions. Human labor is not the primary productive force.

Material scarcity for food, water, and energy approaches elimination in stable regions. Political power concentrates around control of AI infrastructure. This is the defining conflict of the 22nd century.

The first generation of humans with significantly extended lifespans reaches what would previously have been middle age. Their political and economic power compounds through extended accumulation periods. This creates structural tension between long-lived and standard-lifespan populations. No prior society has managed this condition.

Space colonization produces self-sustaining populations on the Moon and Mars. Total off-Earth population is between 1 million and 10 million by 2200.

The first fully post-biological entities exist as functioning systems by 2200. Whether they are recognized as persons, tools, or threats depends on political developments in the preceding century.

Branch Point 3: Governance of Post-Scarcity (2100–2150)

The central structural problem of this period: who controls AI infrastructure, and under what constraints. No prior governance theory provides adequate models for this level of productive capacity concentration.

3A: Distributed Stability **(35%)** — New governance models emerge that distribute access to AI-managed resources. Global inequality decreases over several generations. This requires deliberate design or successful revolution. Both are historically rare at civilizational scale.

3B: Concentration **(40%)** — Control of AI infrastructure becomes hereditary or self-reinforcing. A small class permanently controls material conditions for the majority. This is a stable equilibrium, not a transition state. It could persist for centuries. Historical analogies: Roman latifundia, medieval serfdom, the East India Company. All eventually broke down, but across spans of 200 to 500 years.

3C: Conflict **(25%)** — Disputes over AI infrastructure and biological resources produce major armed conflict. Includes possibility of biological or nuclear weapons use. Civilizational damage is significant but not terminal.

PHASE 3: 2300–2600

Phase Confidence: 10–20% *Uncertainty at this range is extreme. Estimates reflect trend extrapolation only.*

Primary Trajectory

Biological diversity among human-descended populations increases through deliberate modification. Multiple distinct populations exist with significant cognitive and physical differences.

Mind-computer integration produces hybrid entities. Full substrate independence, the transfer of a mind to a non-biological substrate, may be achievable by 2400 but is not guaranteed. The philosophical and legal status of such transfers is not resolvable by current frameworks.

The solar system is substantially colonized. Interstellar travel remains beyond economic or physical feasibility for populations. Probe technology may reach nearby stellar systems.

Post-biological entities exist as a distinct category by 2400. Their relationship to biological humans is unclear. Historical analogies fail here. No prior divergence in cognitive substrate has occurred within a single species.

Branch Point 4: Post-Human Divergence (2300–2400)

4A: Gradual Differentiation (35%) — Enhanced and standard human populations diverge over generations but maintain political and cultural ties. No sharp break. Analogous to the historical divergence between literate and non-literate populations, but across a wider biological gap.

4B: Separation (40%) — Post-biological and significantly enhanced populations develop interests incompatible with standard human populations. Effective speciation occurs. The outcome of this separation determines the subsequent 500 years. No prior tool-using species has divided against itself along substrate lines. This is a genuinely novel event.

4C: Convergence (25%) — Standard biological humans choose enhancement at high rates. Original biological form becomes a minority preference. Cultural continuity is maintained through rapid shared transformation.

PHASE 4: 2600–3025

Phase Confidence: 5–10% *Structural observations only. Specific prediction is not meaningful at this range.*

Primary Trajectory

If post-biological entities exist in large numbers by 2400, they will dominate high-computation activities. Their goals and values will not be predictable from current human values. This is not a concern or a hope. It is a structural consequence of divergent development.

Biological human populations will persist in some form. Evidence from all prior periods of technological transition supports this: old substrates do not disappear, they become specialized. Biological humans in 3025 may occupy a niche analogous to subsistence farmers in 2025. Not dominant, not extinct, not particularly relevant to the primary vectors of change.

If interstellar travel remains impossible, all human-descended civilization is contained within the solar system. Resource limits within this boundary become relevant by 3000 or earlier if population growth continues.

Contact with other civilizations is not expected by 3025 based on current SETI evidence and Fermi constraint analysis. Absence of evidence in this domain is weak evidence. This estimate carries very low confidence.

CUMULATIVE PROBABILITY ESTIMATES

Probability of survival of complex civilization through each period. Figures reflect cumulative risk from AI misalignment, nuclear and biological weapons, ecological collapse, and catastrophic governance failure. They do not reflect probability of any specific positive trajectory.

Period	Metric	Estimate
To 2100	Civilizational survival	85%
To 2300	Civilizational survival	55–65%
To 2600	Civilizational survival	35–45%
To 3025	Civilizational survival	25–40%

DOMINANT RISK FACTORS BY PERIOD

2025–2075: AI alignment failure, nuclear exchange, engineered pathogen.

2075–2200: Extreme inequality producing systemic instability, climate cascade effects, misuse of biological enhancement.

2200–2400: Conflicts between enhanced and standard human populations, resource constraints within the solar system.

2400–3025: Loss of human-legible values in successor entities, post-biological intelligence pursuing goals incompatible with human or biological welfare.

LOW-PROBABILITY HIGH-IMPACT BRANCHES (To 2300)

Benevolent Singleton **(5%)** — A single AI or AI-directed entity achieves global control and uses it to stabilize conditions for all life. Positive outcome. No historical precedent for a stable benevolent monopoly. All prior monopolies have either broken down or become predatory within several generations.

Extinction **(5–8%)** — All human-derived life ends before 3025. Most probable cause: engineered pathogen or misaligned AI with no recovery pathway. Does not require intent.

Technological Plateau **(10%)** — Development plateaus by 2200. Human civilization stabilizes without post-human divergence. The longest-lasting stable scenario if achieved. No post-human entities. No speciation. Analogous to the long steady states of ancient agricultural civilizations, which lasted 2,000 to 5,000 years.

External Contact **(less than 1%)** — Detection of or contact with an external technological civilization before 3025 would invalidate most trajectory estimates. Not predicted. Not impossible.

Note on Methodology Limits

All estimates beyond 2100 are extrapolations from current trends. They assume no events that are currently unimaginable. History contains many such events. The confidence levels reflect known unknowns only. Unknown unknowns are not quantified because they cannot be.

The most probable single path is: controlled AI transition, biological stratification, governance concentration, gradual post-human divergence, persistence of biological humans in reduced roles. This path is probably wrong in several specific ways. It is likely correct in its general structure.